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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,813	11/26/2003	Jonathan C. Lucker	P17778	8143
25694	7590	12/16/2005		
INTEL CORPORATION P.O. BOX 5326 SANTA CLARA, CA 95056-5326				
			EXAMINER BRADLEY, MATTHEW A	
			ART UNIT 2187	PAPER NUMBER
DATE MAILED: 12/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/722,813	<b>Applicant(s)</b> LUCKER ET AL.	
	<b>Examiner</b> Matthew Bradley	<b>Art Unit</b> 2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/26/03, 6/13/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 13 June 2005 was filed on the filing date of 26 November 2003 for application 10/722,813. The submission is in compliance with the provisions of 37 CFR 1.97. However, under U.S. Patent Documents, Cite No 3 and 6 are incorrectly recorded. Document 3 and document 6 are numbered 2003/058681 and 2002/149986 respectively. As currently disclosed, the documents cannot be retrieved using the numbering provided. A leading zero has been omitted after the slash preventing proper retrieval. The documents should be numbered as 2003/0058681 and 2002/0149986. The Examiner has crossed through Cite No. 3 and 6 and has corrected them as shown beneath Cite No. 6. Accordingly, the Examiner is considering the information disclosure statement with a signed and initialed copy being attached hereto.

The information disclosure statement (IDS) submitted on 26 November 2003 was filed on the filing date of 26 November 2003 for application 10/722,813. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner is considering the information disclosure statement with a signed and initialed copy being attached hereto.

### ***Claim Status***

Claims 1-28 remain pending and are ready for examination.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the another memory operation" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 13-21, and 23-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamp et al (U.S. 6,201,731), herein after referred to as Kamp, and Mihara et al (U.S. 5,406,510), herein after referred to as Mihara, which is incorporated by reference in Kamp (see Column 17 lines 3-5).

As per independent claim 1, Kamp teach,

- performing a read cycle that includes a destructive read operation and a write back operation; and (Column 17 lines 15-19)
- wherein the destructive read operation includes reading information from a first memory cell of a memory and (Column 17 lines 15-19)

- wherein the write back operation includes writing the information read from the first memory cell to a second memory cell of the memory. (Column 17 lines 28-31).

As per dependent claim 2, Mihara teach,

- wherein reading information includes: applying a read voltage across the first memory cell; and determining the amount of charge released from the first memory cell to determine the logic state of the information stored in the first memory cell. (Column 6 line 65 to Column 7 line 37).

As per dependent claim 3, Mihara teach, wherein writing the information includes applying a write voltage across the second memory cell (Column 8 lines 18-25).

As per dependent claim 4, Kamp teach, delaying writing to the first memory cell for a predetermined amount of time (Column 17 lines 22-26).

As per dependent claim 5, Mihara teach, wherein the another memory operation includes applying a first voltage having a first polarity across the first memory cell, wherein the first voltage is sufficient to switch the polarization of the first memory cell (Column 7 line 44-51). *The Examiner notes that the charge that is applied to the capacitor is enough to erase the logic 1 that the capacitor is holding. Thus this destroying of the logic 1 anticipates the instant limitation of switching the polarity.*

As per dependent claim 6, Kamp teach, wherein the destructive read operation includes reading information from a first memory cell of a non-volatile polymer ferroelectric disk cache memory (Column 1 lines 27-30).

As per dependent claim **7**, Kamp teach, wherein writing the information includes writing the information read from the first memory cell to a second memory cell if the second memory cell is blank (Column 17 lines 15-19). *The Examiner notes that the system of Kamp teaches that operations take place before the cell or cells have been rewritten. Accordingly, the system of Kamp teaches the limitation of if the second memory cell is blank by performing the operations on cells that have not been rewritten.*

As per dependent claim **8**, Kamp teach, wherein the write back operation further includes writing the information read from the first memory cell back to the first memory cell after a predetermined amount of time has passed (Column 17 lines 22-26).

As per dependent claim **9**, Kamp teach, wherein the first memory cell is located in a first segment of the memory and the second memory cell is located in a second segment of the memory that is physically separated from the first segment (Column 17 line 23). *The Examiner notes that the system of Kamp maintains a memory array. Accordingly, the array anticipates the instant limitation of physically separated.*

As per independent claim **13**, Kamp teach, receiving a request to write information to a first location in a polymer memory; and writing the information to a second location in the polymer memory in response to the request. *The Examiner incorporates herein by reference the rejections made supra with respect to claim 1.*

As per dependent claim **14**, Kamp teach, further comprising determining whether the second location is available and wherein the writing includes writing the information only to the second location in the polymer memory in response to the request (Column 17 lines 15-19). *The Examiner notes that the system of Kamp teaches that operations*

*take place before the cell or cells have been rewritten. Accordingly, the system of Kamp teaches the limitation of if the second memory cell is blank by performing the operations on cells that have not been rewritten.*

As per dependent claim **15**, Kamp teach, wherein writing includes writing the information to the second location and not writing the information to the first location in response to the request if the second location is available (Column 17 lines 15-19). *The Examiner notes that the system of Kamp teaches that operations take place before the cell or cells have been rewritten. Accordingly, the system of Kamp teaches the limitation of if the second memory cell is blank by performing the operations on cells that have not been rewritten.*

As per dependent claim **16**, Kamp teach, wherein the first location is in a first array of the polymer memory and the second location is in a second array of the polymer memory, wherein the first array is physically separated from the second array (Column 17 line 23). *The Examiner notes that the system of Kamp maintains a memory array. Accordingly, the array anticipates the instant limitation of physically separated.*

As per dependent claim **17**, Kamp teach, wherein the polymer memory is a destructive read ferroelectric memory, and the first location is in a first segment of the polymer memory and the second location is in a second segment of the polymer memory, wherein the first segment is physically separated from the second segment (Column 17 line 23). *The Examiner notes that the system of Kamp maintains a memory array. Accordingly, the array anticipates the instant limitation of physically separated.*

As per independent claim **18**, Kamp teach, a memory having at least two memory arrays; and a memory controller coupled to the memory to perform a read cycle that includes a destructive read operation and a write back operation, wherein the destructive read operation includes reading information from a first memory cell of the memory and wherein the write back operation includes writing the information read from the first memory cell to a second memory cell of the memory. *The Examiner incorporates herein by reference the rejections made supra with respect to claim 1.*

As per dependent claim **19**, Kamp teach, wherein the first and second memory cells are ferroelectric memory cells comprising a non-volatile ferroelectric polymer material (Column 1 lines 27-30).

As per dependent claim **20**, Kamp teach, wherein the non-volatile ferroelectric polymer material comprises a polyvinyl fluoride, a polyethylene fluoride, a polyvinyl chloride, a polyethylene chloride, a polyacrylonitrile, a polyamide, copolymers thereof, or combinations thereof (Column 1 lines 27-30).

As per independent claim **21**, Kamp teach, a disk memory; a disk cache memory coupled to the disk memory; and a memory controller coupled to the memory to perform a read cycle that includes a destructive read operation and a write back operation, wherein the destructive read operation includes reading information from a first memory cell of the memory and wherein the write back operation includes writing the information read from the first memory cell to a second memory cell of the memory. *The Examiner incorporates herein by reference the rejections made supra with respect to claim 1.*



As per dependent claim **23**, Kamp teach, wherein the disk cache memory is a non-volatile polymer memory (Column 1 lines 27-30).

As per dependent claim **24**, Kamp teach, wherein the disk cache memory is a non-volatile ferroelectric memory (Column 1 lines 27-30).

As per dependent claim **25**, Kamp teach, wherein the first memory cell is located in a first array of the memory and the second memory cell is located in a second array of the memory that is physically separated from the first array (Column 17 line 23). *The Examiner notes that the system of Kamp maintains a memory array. Accordingly, the array anticipates the instant limitation of physically separated.*

As per independent claim **26**, Kamp teach, receiving a request to write information to a first location in a ferroelectric memory; and writing the information to a second location in the ferroelectric memory in response to the request. *The Examiner incorporates herein by reference the rejections made supra with respect to claim 1.*

As per dependent claim **27**, Kamp teach, further comprising determining whether the second location is available and wherein the writing includes writing the information only to the second location in the ferroelectric memory in response to the request (Column 17 lines 15-19). *The Examiner notes that the system of Kamp teaches that operations take place before the cell or cells have been rewritten. Accordingly, the system of Kamp teaches the limitation of if the second memory cell is blank by performing the operations on cells that have not been rewritten.*

As per dependent claim **28**, Kamp teach, wherein writing includes writing the information to the second location and not writing the information to the first location in

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response to the request if the second location is available, wherein the first location is in a first array of the ferroelectric memory and the second location is in a second array of the ferroelectric memory, and wherein the first array is physically separated from the second array (Column 17 line 23). *The Examiner notes that the system of Kamp maintains a memory array. Accordingly, the array anticipates the instant limitation of physically separated.*

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims **10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamp (U.S. 6,201,731) in view of Rubinstein, (U.S. 5,913,215).

Claims 10, 11, and 12 are method versions of claims 1, 4, and 7, respectively, enabled by instructions rather than hardware. Kamp discloses an apparatus for performing the method of claims 10-12, as discussed above in the rejection of claims 1,

4, and 7.

Kamp, however, does not expressly disclose that the method is performed by a software series of instructions, instead disclosing a set of hardware components.

Rubinstein discloses, on Col. 10, lines 3-15, that computer methods may be performed either by a series of instructions, or by specific hardware components that contain hard-wired logic for performing the method, or by any combination of the two. Kamp and Rubinstein are analogous art because they are from the same general field of endeavor, namely computer-controlled methods.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the apparatus of Kamp by embodying it in executable instructions.

The motivation for doing so is portability and ease of installation. For example, it is well known that a method encoded in a program may be installed onto different systems much more quickly and easily than can hardware components designed to perform the same method.

Therefore, it would have been obvious to combine Kamp with Rubinstein for the benefits shown above, to obtain the invention as specified in claims 10-12.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamp (U.S. 6,201,731).

Kamp teach a disk cache memory (Element 1111 of Figure 11) and a disk memory (Element 1125 of Figure 11).

The difference between Kamp and the claims is the claims recite specific storage capacities. However, the specific use of a certain capacity, does not have a disclosed purpose nor are disclosed to overcome any deficiencies in the prior art. As such, the capacity may have been embodied in a number of manners, such as one to many megabytes or one to many gigabytes. Accordingly, it would have been an obvious matter to one skilled in the art to utilize any capacity as necessitated by a user's need in the system of Kamp. See also MPEP 2144.04 as to why a mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. U.S. Patent 6,683,803 Gudesen et al teach a data storage and retrieval method.
2. U.S. Patent 6,724,645 Lanham et al teach a method for shortening the read operation in a destructive read memory.
3. U.S. Patent Application Publication 2003/0026122 Nair et al teach a method for reading a ferroelectric memory device.
4. U.S. Patent Application Publication 2003/0051148 Garney teaches usage restrictions on a destructive read memory.
5. U.S. Patent Application Publication 2003/0063512 Takahashi et al teach a shorter memory cycle in a storage device.


6. U.S. Patent Application Publication 2003/0204667 Ji et al teach a destructive read RAM with a destructive read cache.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Bradley whose telephone number is (571) 272-8575. The examiner can normally be reached on 6:30-3:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAS/mb



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